

The North Dakota Dual Aurora Camera (NoDDAC), a student-led citizen science project: data showcase, future developments, and scientific potential

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Project Overview

Motivation

- Built to address the needs of aurora chasers and *hams in mid-latitude areas*.
- Aurora cameras offer ground-truth visual confirmation of satellite and mag. data.
- Creates scientifically-useful data; has observed rare phenomena such as STEVEs and SAR arcs.
- Data are useful to study the connection between optical aurora and radio aurora science.

Tech Specs

- Stationed at the Martens Observatory (48.1°N).
- Allsky stills camera - Canon T6 and Sigma 4.5mm f/2.8 fisheye; 30s, f/2.8, Auto ISO exposures every two minutes.
- North-facing video camera - Sony a7s ii and Sony 24mm f/1.4GM; 1/4s, f/1.4, Auto ISO video livestreamed to YouTube and Live Aurora Network.

Functionality

- NoDDAC data are archived and made open-source (new platform coming soon).
- Partners with Aurorasaurus: when aurora is detected, tweet is posted online and on the auroral oval map.
- NoDDAC posts a recap of the night's activity on Twitter @noddac_cameras.



Data Showcase

- Since 2021, NoDDAC has detected aurora on over 20 occasions, e.g. coronas, pulsating aurora, STEVE, SAR arcs, and dunes.



SAR Arc, 05:34 UT 10/12/21



STEVE, 06:10 UT 10/12/21

Future Developments

- Zooniverse-style citizen science with NoDDAC data.
- Crossover with ham radio citizen science (i.e. Personal Space Weather Station).
- Data science on existing NoDDAC observations to describe how aurora behaves in North Dakota.
- Easy-to-use website with livecam feeds and other helpful data products specific to aurora chasers and ham radio operators.
- Archival data made easily accessible by the public so that hams and other citizen scientists can conduct science.
- Increase awareness of NoDDAC in key communities, including hams in the mid-latitude auroral zone.

Scan the QR Code to learn more about NoDDAC!



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